

Fin
Conced

transmitting a signal from said mobile station indicating said
respective signal strengths;
receiving at one of said at least two base stations said signal
indicative of signal strengths and sending said signal indicative of signal strengths to a
network controller; and
processing said indicated signal strengths in said network controller
and selecting one of said at least two base stations to maintain communication with said
mobile station.

REMARKS

The Office Action and cited reference have been considered. Reconsideration and allowance of the above-identified application are respectfully requested.

Claims 7-9 and 14-15 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 5,267,261 to Blakeney, II et al. Prior to discussing this ground of rejection, a brief summary of Applicants' novel method and apparatus for mobile assisted handover using CDMA is provided in order to highlight some of the advantageous characteristics thereof.

According to exemplary embodiments of the present invention, handover between base stations can be accomplished by providing different codes for each of a plurality of diversity transmissions in a CDMA communication system. In the mobile unit, signals are received from two base stations, and a demodulated signal is produced for each base station signal. Because each signal is separately demodulated, these exemplary

Serial No. 07/870,337

embodiments allow for selection combining on a symbol by symbol basis, rather than selection of one of the whole signals, i.e., all symbols. Further, because each base uses a different scrambling code, an originally connected base station need not transmit an allocated code to other base stations which are also about to begin transmission to a mobile station.

The Blakeney document describes a type of mobile assisted soft handoff in a CDMA cellular system in which the mobile station is communicating with the user via at least one base station at all times throughout the handoff. However, in Blakeney, the pilot signal transmitted by each base station uses the same PN spreading code but with a different code phase offset. Applicants understand the Examiner's argument that a phase offset results in a different overall "code." However, such a characterization ignores the functional distinction between a system in which each base has a truly different code and one in which only the phase offset is different. In the former system, an originally connected base station need not transmit an allocated code to other base stations which are also about to begin transmitting to a mobile station. Also, by using different codes, a relative delay in the code, as required by conventional systems, becomes unnecessary because CDMA mobile receivers are able to simultaneously receive and decode both a first signal coded in the original manner and a diversity coded signal.

Applicants further submit that the claimed combinations are patentably distinct over Blakeney. Claim 7 recites, among other features, decoding, at the mobile station, signals received simultaneously from the at least two base stations on a common frequency, each signal encoded with a different scrambling code. Blakeney does not

Serial No. 07/870,337

disclose at least this feature of Applicants' claimed combination. In Blakeney, the pilot signal transmitted by each base station is encoded with the same PN spreading code.

Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Applicants also call to the Examiner's attention an important distinction with respect to the demodulated data signals. Claim 14 recites, among other features, CDMA processing means for processing and decoding the numerical values using a first and second code to obtain demodulated data signals received from the first and second base stations.

By contrast, in Blakeney, only a single demodulated signal is produced by diversity combining the signals received from two base stations. The data demodulation process uses information from both of the base stations in a diversity combining operation to produce a single demodulated signal. (See, Blakeney at col. 11, lines 6 - 8). Blakeney does not disclose, among other features, decoding the numerical values using a first and second code to obtain demodulated data signals received from the first and second base stations, which advantageous feature allows for selection combining on a symbol-by-symbol basis. Accordingly, reconsideration and withdrawal of the rejection of claim 14 is respectfully requested.

Claims 1-6 and 10-13 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Blakeney. This rejection is respectfully traversed for the following reasons.

Claim 1 recites, among other features, receiving at the mobile station the signals transmitted on the first frequency from the first and second base stations and decoding the

Serial No. 07/870,337

signals using the first and second codes to produce a first and a second demodulated signal. For the reasons discussed above with respect to claim 14, it is submitted that Blakeney does not disclose or suggest at least these features of Applicants' claimed combination. Blakeney relates to a system in which only a single demodulated signal is produced, and the Examiner has set forth no reasons why a modification of Blakeney to produce a first and a second demodulated signal would have been obvious to one of ordinary skill in the art. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claim 5 recites, among other features, that the error correcting step comprises selecting symbols from the first and second demodulated signals. As discussed above, Blakeney does not disclose or suggest at least this feature of Applicants' claimed combination. By contrast, Blakeney discloses only a form of "maximal ratio combining." (See, Blakeney at col. 11, lines 6 - 17) which uses a weighted sum of the receiver outputs. In Blakeney, the selection operates on a whole signal (i.e., all symbols, after error correction decoding, using the output of one receiver alone) from one of the base stations, rather than on a symbol by symbol basis from either base station. Accordingly, reconsideration and withdrawal of the rejection of claim 5 is respectfully requested.

Claim 6 recites, among other features, that the error correction step comprises combining symbols from the first and second demodulated signals.

In Blakeney, however, a form of diversity combining is disclosed in which the combining is performed first to produce a combined signal, followed by demodulation and error correction coding operating on the single combined signal. (See, Blakeney at

Serial No. 07/870,337

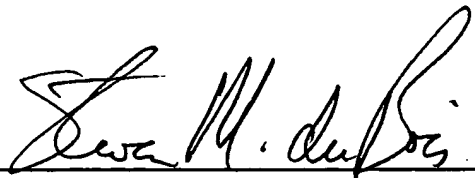
col. 13, lines 54 - 65). Blakeney does not disclose or suggest that the error correction step comprises combining symbols from the first and second demodulated signals. Accordingly, reconsideration and withdrawal of the rejection of claim 6 is respectfully requested.

Claims 2 and 10 are believed to be allowable for at least the same reasons that claims 7 and 14 are allowable, respectively, as discussed above.

In view of the above proposed amendments and remarks, it is respectfully submitted that the above-identified patent application is in condition for allowance and notice to that effect is earnestly solicited. If there are any questions regarding this response, or the application in general, the Examiner is urged to contact the undersigned at (703) 838-6642.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS

By: 

Steven M. du Bois
Registration No. 35,023

Post Office Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

Date: January 9, 1995